

Notice of Allowability

Application No.

10/511,423

Examiner

Fernando L. Toledo

Applicant(s)

WATANABE, HEIJI

Art Unit

2823

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to the application as filed on 15 October 2004.
2. ☒ The allowed claim(s) is/are 1-65.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☒ All b) ☐ Some* c) ☐ None of the:
 1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date 20050106
4. ☐ Examiner's Comment Regarding Requirement for Deposit
of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413),
Paper No./Mail Date _____.
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.

DETAILED ACTION

Allowable Subject Matter

1. Claims 1 – 65 are allowed over the prior art of record.
2. The following is an examiner's statement of reasons for allowance: Kaushik et al. in the U. S. Patent 6,184,072 B1 discloses several transistors wherein a first transistor having a first gate insulating layer and a second transistor having a second gate insulating layer. However, Kaushik discloses that the second transistor has a metal residual layer instead of a second high-k dielectric layer. It would take impermissible hindsight and would also destroy the invention of Kaushik if the metal residual layer is changed to a high-k dielectric layer.
3. Tsui et al. in the U. S. Patent 5,960,289 discloses two transistors with two different gate insulating layers, however, neither the first insulating layer nor the second insulating layer are made of a high-k dielectric insulating layer. It would take improper hindsight to change the layers of Tsui to high-k dielectric layers.
4. Lee, in the U. S. Patent 6,169,018 B1 discloses having two transistors with two different gate insulating layers, however, neither the first insulating layer nor the second insulating layer are made of a high-k dielectric insulating layer. It would take improper hindsight to change the layers of Lee to high-k dielectric layers.
5. Cho, in the U. S. Patent 6,143,669 discloses two gate-insulating layers with different thicknesses. However, the gate insulating layers are not high-k dielectric layers. Furthermore, Cho is silent about a second high-k insulating layer formed on the first insulating layer to provide

two regions with different thicknesses. Instead, Cho discloses implanting ions so as to make one of the gate insulating layers thicker than the other.

6. Gardner et al. in the U. S. Patent 6,255,698 B1 discloses two transistors with high-k dielectric gate insulating layers, however, none of the transistors have a second high-k dielectric layer deposited on the first high-k dielectric layer so as to make one gate insulating layer thicker than the other. Gardner on the other hand, forms a barrier film on both of the gate insulating films.

7. Therefore, and for the reasons above, the claimed invention as a whole is neither anticipated nor rendered obvious over the prior art of record.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

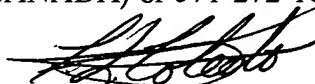
Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Fernando L. Toledo whose telephone number is 571-272-1867. The examiner can normally be reached on Mon-Fri 12pm-7:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Smith can be reached on 571-272-1907. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Fernando L. Toledo
Patent Examiner
Art Unit 2823

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6 August 2006